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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,834	02/27/2004	Matthijs H. Keuper	LUM-04-01-04 US	8255
32566	7590	08/28/2006	EXAMINER	
PATENT LAW GROUP LLP 2635 NORTH FIRST STREET SUITE 223 SAN JOSE, CA 95134			HARRINGTON, ALICIA M	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/789,834

Applicant(s)

KEUPER ET AL.

Examiner

Alicia M. Harrington

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 2,3,6,11-13,17,21 and 23-30 is/are allowed.  
6) ☒ Claim(s) 1,5,7-10,14-16,18,20,22,31 and 32 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 6/5/06 have been fully considered but they are not persuasive. Applicant argues the color prism does not have dichroic filters positioned orthogonally relative to one another. The Examiner must respectfully disagree. The cross layers of the prism are dichroic in nature. See col. 2, lines 60-67 and col. 3, lines 1-7 that discuss the color prism selectively transmits and reflects light according to wavelength. Thus, Song (US 6,442,754) teaches the claimed invention and the rejection of claims 1,5,7-10,14-16,18,20,22.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,5,7-9,14,15,18,20,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al (US 6,552,754) in view of Roddy et al (US 6,648,475).

Regarding claims 1,14, and 18, Song discloses an apparatus comprising:  
a first laser diode, a second laser diode and a third laser diode, (see col. 2, lines 17-24 and 39-50; col. 6, lines 40-60; 21,22,23-see figure 8 or 9),

a first reflecting surface (24 or 41) positioned to reflect light emitted from the first laser diode;

a second reflecting surface (25 or 42) positioned to reflect light emitted from the second laser diode;

a first filter (a cross layer of the prism between the two reflecting surfaces) disposed between the first reflecting surface and the second reflecting surface and configured to reflect the light reflected from the first reflecting surface and to transmit light reflected from the second reflecting surface and the light emitted by the third laser diode; and

a second filter (a cross layer of the prism between the reflecting surface) disposed between the first reflecting surface and the second reflecting surface and configured to reflect the light reflected from the second reflecting surface and to transmit light reflected from the first reflecting surface and the light emitted by the third laser diode (see col. 6- col. 7, lines 1-27; #30);

wherein the first filter and second filter combine the light reflected from the first reflecting surface, the light reflected from the second reflecting surface and the light emitted from the third light emitting diode (see figures 8 or 9). Additionally, the color prism has a cross layer (orthogonal) which are dichroic in nature because the layers reflect and transmit light according to wavelength (see col. 2, lines 60-67 and col. 3, lines 1-7).

However, Song fails to disclose an embodiment where light emitting diodes are implemented in the projection system to provide the primary color wavelengths. Although, it would have been obvious to one of ordinary skill in the

art at the time the invention was made to substitute LED light source for the laser diode, since prior art (Roddy et al) teaches a diode projection system can implement primary color light using lasers or LED's (see col. 11, lines 30-40) because they both offer a spectrally pure light source and it would be a functional equivalent. An LED light source is a cheap, compact and lower power source. Regarding claims 5 and 20, Song discloses the apparatus of claim 4, wherein a x prism with dichroic filters are used to selective transmit and reflect light and the structure of the x-cube is equivalent to a first filter has a front surface and a back surface, and wherein the second filter comprises two halves, a first half having an end that abuts the front surface of the first filter and the second half having an end that abuts the back surface of the first filter. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include this filter structure in the dichroic x prism, since it is known in the art and provides adequate reflection and transmission properties for light sources directed/aligned to emit light towards the prism.

Regarding claims 7 and 15, Song discloses the apparatus of Claim 1, the apparatus further comprising a lens configured to receive the combined light from the first filter and the second filter (#40).

Regarding claims 8 and 22, Song and Roddy disclose the apparatus of Claim 1, wherein the first light emitting diode, second light emitting diode and third light emitting diode each emit light of a different color, the colors being red, green and blue (see col. 5, lines 45-50 of Song; and see col. 10 of Roddy).

Regarding claim 9, Song discloses the apparatus of Claim 1, wherein the first laser emitting diode, second laser emitting diode and third laser emitting diode lie within the same plane (see figures 8 or 9). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Song, to place LED's in the same plane, since Song teaches placing the light sources in the same plane and the LED's are a functional equivalent light source.

4. Claims 10,16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US 6,552,754) in view of Roddy et al (US 6,648,475), further in view of Morgan (US 2005/0128441).

Regarding claims 10 and 16, Song and Roddy discloses a laser/LED video projector, which inherently has a frame for the parts of the projector. However, they fail to specifically disclose the LED array is mounted on a heat sink in the frame.

Morgan discloses an LED projection system where an embodiment of the invention incorporates the LED mounted on a heat sink (see sections 58 and 101). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount an LED array to a heat sink, since it is known in the projection art, helps to make the projection system more compact and provide a way decrease the heat in the overall projection system.

5. Claims 31,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US 6,552,754) in view of Roddy et al (US 6,648,475), further in view of Magarill (US 2005/0134811).

Regarding claim 31, Song and Roddy fail to specifically disclose integrating the output first and second filters. The color prism of Song, outputs a combined beam to form the projected image. Magarill teaches integrating the beam output from a color prism (sees abstract and figures). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the output of the color prism (two filters) to homogenize the beam to provide well-balanced color image.

***Allowable Subject Matter***

6. Claims 2,3,6,11-13,17,21,23-30 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 2,3,6,17,21,23-30, see applicant's argument at page 12, filed on 6/5/06.

Regarding claim 11, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed limitations which includes an apparatus further comprising, a fourth light emitting diode, third reflecting surface, fourth reflecting surface positioned to reflect light from the fifth light emitting diode, wherein the first filter is further configured to reflect light from the third reflecting surface and to transmit light reflected from the fourth reflecting surface, and the second filter is further configured to reflect light from the fourth reflective

surface and to transmit light reflected from the third reflective surface as claimed.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571 272 2333. The fax



phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alicia M Harrington  
Primary Examiner  
Art Unit 2873

AMH